RECOMMENDED PRACTICES MANUAL

A GUIDELINE FOR MAINTENANCE AND SERVICE OF UNPAVED ROADS

CHOCTAWHATCHEE, PEA and YELLOW RIVERS WATERSHED MANAGEMENT AUTHORITY
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ACKNOWLEDGMENTS

This manual is the realization of the vision and effort of a group of men and women committed to preserving and enhancing the quality of our water resources, and the environment in general, while improving the methods of maintaining our unpaved public road infrastructure. Their endeavor has been to incorporate a new way of thinking. This is being done by introducing new ideas and innovations to effect positive changes from traditional approaches to unique and even revolutionary approaches toward maintaining our unpaved roads and ditches. Paramount to this has been educating our society of the need for enhanced environmental sensitivity.

While many have been pro-active in this endeavor, special recognition is given to Mr. Joe K. Parker, Chairman, Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority for his tenaciousness in addressing unpaved roadway problems and in energizing the CPYRWMA to be pro-active in taking the initiative to help solve these problems. Acknowledgment is also due Mr. H. Estus Walker, former Executive Director, in his active leadership and skill spearheading the initiative, consolidating the necessary resources, and putting into motion events which led to the publishing of this manual.

A special thanks to all those professionals and laymen who gave of their time, shared their knowledge and experience, and shared their ideas to help make this a manual a reality.

The research, assemblage, and compilation of the text, figures, and photographs contained within this manual was performed under contract between the Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority and Polyengineering, Inc., Dothan, Alabama. Gene Kearley, P.E. was the author and project manager, assisted by Lawrence McCallister, P.E. as principal engineer.

DISCLAIMER

This manual does not constitute a standard, specification, or regulation bound on any professional group or political entity, but is intended only as a guide.

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INTRODUCTION

Funding Source

Partial funding for this manual is provided by a grant from the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency through a Clean Water Act, Section 319 grant to the Alabama Department of Environmental Management, the southeast Alabama County Commissions of Barbour, Coffee, Covington, Crenshaw, Dale, Geneva, Henry, Houston, and Pike Counties; and the Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority, an agency of the State of Alabama. The funds are administered by the Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority.

Participants

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Purpose

To provide a written manual of standard procedures which describe and illustrate cost effective techniques and practices which can be used to enhance stability and maintenance of unpaved roadways while reducing sedimentation and improving the quality of surface waters in the Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority (CPYRWMA) counties in south Alabama and northwest Florida. County and City Engineers, road maintenance crews, private companies, lake associations, select Boards and Authorities, and the citizenry of Alabama can effectively use this manual.

Need

The costs involved in maintenance of unpaved roads is one of the most significant items in the budgets of most southeast Alabama counties. Erosion of unpaved roads and their drainage systems is the single most significant factor affecting maintenance needs and costs involved with these roadway systems. The costs to the counties and local municipalities, due to roadway erosion, is not limited to direct costs associated with keeping these unpaved roads passable, but also include additional costs due to increased flooding, impaired waterway navigation, loss or impairment of stream or lakeside recreational areas, loss of fisheries and other riparian zone natural resources, adverse effects on the natural food chain, and loss of aesthetics which can have profound effects on tourism and general business growth. Most of the latter-mentioned effects are considered in today's social climate to be *environmental* issues, and they are; but rest assured, they are very real economic concerns as well.

Erosion of unpaved roadways occurs when soil particles are loosened and carried away from the roadway base, ditch, or road bank by water, wind, traffic, or other transport means. Exposed soils, high runoff velocities and volumes, sandy or silty soil types, and poor compaction increase the potential for erosion. Loosened soil particles are carried from the road bed and into the roadway drainage system. Some of these particles settle out satisfactorily in the road ditches, but most often they settle out where they diminished the carrying capacity of the ditch, and in turn cause roadway flooding, which subsequently leads to more roadway erosion. Most of the eroded soil, however, ultimately ends up in streams and rivers where it diminishes channel capacity causing more frequent and severe flooding, destroys aquatic and riparian habitat, and has other adverse effects on water quality and water-related activities.

Aggravating causes of erosion on unpaved roadways include erosive road-fill soil types, shape and size of coarse surface aggregate (if any), poor subsurface and/or surface drainage, wet and dry road fill moisture extremes due to atmospheric conditions, freeze/thaw cycles, poor roadbed construction (poor graded material, inadequate compaction), roadway shape, roadway shading/sunlight exposure, traffic parameters such as speed, volume, vehicular weight, and lane patterns, exposed soils, untimely road and drainage system maintenance, excessive off-site runoff, and lack of adequate numbers of runoff discharge outlets (turn-outs) from the roadway. This is not an all-inclusive list of causative factors of erosion; however, it should be enough to make apparent the scope of the problem and the need for a comprehensive, wide-spread, maintenance guideline which incorporates the knowledge and experience of pertinent professionals and skilled laymen from throughout the concerned areas in an effort to reduce roadway maintenance needs and costs through erosion control on unpaved roads. The result will be money freed from maintenance and repair expenditures becoming available for more productive projects such as more substantial roadway improvements, etc., and subsequently, an improvement in the overall economy of the Choctawhatchee, Pea, and Yellow River basins.